

## REMARKS

Applicants thank the Examiner for indicating that claims 23 and 30 would be allowable if rewritten in independent form to include all limitations of any intervening claims.

Claims 1, 13-17, 20-24, and 27-31 are pending in the application. Claims 1, 16, and 24 are independent. By the foregoing Amendment, claims 1 and 24 have been amended. These changes are believed to introduce no new matter and their entry is respectfully requested.

### Objection to Claim 1

In the Office Action, the Examiner objected to claim 1 citing informalities. By the foregoing Amendment, Applicants have amended claim 1 to accommodate the Examiner. Accordingly, Applicants respectfully request that the Examiner reconsider and remove the objection to claim 1.

### Obviousness-Type Double Patenting

In the Office Action, the Examiner rejected claims 1, 13-17, 20-24, and 27-31 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3-5, and 11-22 of U.S. Patent No. 6,727,946 to Zhao et al. (hereinafter “Zhao”). An obviousness-type double patenting rejection is analogous to a failure to meet the obviousness requirement of 35 U.S.C. §103, thus, any analysis employed in an obviousness-type double patenting rejection parallels the guidelines for analysis of a 35 U.S.C. §103 obviousness determination. (MPEP § 804(II)(B)(1) citing *In re Braat*, 937 F.2d 589, 19 USPQ2d 1289 (Fed. Cir. 1991); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985)). To establish a *prima facie* case of obviousness, an Examiner must show that that there is some suggestion or motivation to modify a reference to arrive at the claimed invention, that there is some expectation of success, and that the cited reference(s) teaches each and every element of the claimed invention. (MPEP §2143 citing *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)). Applicant respectfully traverses the rejection.

In papers filed herewith, Applicants have submitted a Terminal Disclaimer disclaiming the terminal part of any patent granted on the above-identified patent application that would extend beyond the expiration of the full statutory term of United States Patent No. 6,727,946. Applicants respectfully submit that the Terminal Disclaimer overcomes the obviousness-type double patenting rejection. Accordingly, Applicants respectfully request that the Examiner reconsider and remove the rejection to claims 1, 13-17, 20-24, and 27-31.

Rejection of Claims 1, 13-17, 20-22, 24, 27-29, and 31 Under 35 U.S.C. §102(e)

In the Office Action, the Examiner rejected claims 1, 13-17, 20-22, 24, 27-29, and 31 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,111,245 to Wu et al. (hereinafter “Wu”). Applicants respectfully traverse the rejection.

A claim is anticipated only if each and every element of the claim is found, either expressly or inherently, in a reference. (MPEP §2131 *citing Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628 (Fed. Cir. 1987)). The identical invention must be shown in as complete detail as is contained in the claim. *Id. citing Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989)). The elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

Embodiments of the present invention are directed to an active pixel sensor (APS) soft reset circuit. Independent claim 1 recites in pertinent part “a sensor for producing a sensor potential; a pull-down circuit for implementing a pull down function during which the sensor potential is pulled down below a selected critical level; a reset voltage line coupled to the pull-down circuit; and a reset transistor coupled between the reset voltage line and the sensor, wherein during the pull down function the reset transistor is conducting and the pull-down circuit operates to pull down the sensor potential below the selected critical level, ***the pull down function being performed prior to a reset function*** when the sensor potential is reset to a selected level” (emphasis added). Independent claim 16 recites in pertinent part “(a) determining a selected critical level according to the critical potential at which the reset transistor will be on when the soft reset function begins; (b) ***pulling down the sensor potential below the selected critical level before the soft reset function is performed***; and (c) implementing the soft reset function to reset

the sensor potential to a selected reset level (emphasis added). Independent claim 24 recites in pertinent part “a sensor which outputs a sensor potential; a reset transistor coupled to the sensor; and a bit line coupled through a plurality of transistors to the sensor, wherein *the sensor potential is pulled below a selected critical level prior to the time when a soft reset function is performed to reset the sensor potential*” (emphasis added).

In the Office Action, the Examiner states that *Wu* discloses an active pixel sensor circuit comprising a sensor D2, a pull-down circuit M1, M3, M4, and M5 for implementing a pull down function during which the sensor potential is pulled down below a selected critical level, a reset voltage line VDD coupled to the pull down circuit M1, M3, M4, and M5, and a reset transistor M2 coupled between the reset voltage line VDD and the sensor D2, wherein during pull down the reset transistor M2 is conducting and the pull down circuit M1, M3, M4, and M5 operates to pull down the sensor potential below a selected critical potential, the pull down function being performed prior to the completion of a reset function when the sensor potential is reset to a selected level. Applicants respectfully disagree.

*Wu* appears to be directed to an active pixel sensor that is modified to operate at a reduced two volts (2V). Thus as a first matter, *Wu* is not concerned with limitations of hard and/or soft resets. Secondly, Applicants respectfully submit that *Wu* fails to disclose the identical invention as contained in claims 1, 16, and/or 24. For example, *Wu* fails to disclose a pull down circuit. Applicants respectfully submit that transistors M1, M3, M4, and M5 and accompanying text and figures that the Examiner cites for teaching a pull down circuit is a mischaracterization of the transistors of *Wu*.

In Figure 3 of *Wu*, it is clear that M1 serves as a serial electronic shutter, M3 is an amplifier that serves as an output port for the shutter M1, M4 is a column selection transistor, and M5 is a current source cascaded with the diode D2. Figure 4 is a graphical representation of the signals in the circuit of Figure 3. As Figures 3 and 4 illustrate, there is no disclosure of any signal transitioning before the RST signal transitions. Thus Figures 3 and 4 or accompanying text do not disclose “the pull down function being performed prior to a reset function” as recited in claim 1, “pulling down the sensor potential below the selected critical level before the soft reset function is performed” as recited in claim 16, or “the sensor potential is pulled below a selected

critical level prior to the time when a soft reset function is performed to reset the sensor potential” as recited in claim 24.

Applicants respectfully submit that Figures 5 and 6 of *Wu* illustrate the circuitry and operation of the sensing amplifier 31. Although the reference numbers in Figure 5 are the same as those used in Figures 1 and 3, they are not intended to perform the same functions. For instance, note that in Figure 1 M1 is the RESET transistor while in Figure 3 M1 is the SHUTTER. It is clear in *Wu* that M1, M2, M3, M4, and M5 of Figure 5 all are part of the sensing amplifier 31. Thus there is no disclosure in Figures 5 and 6 or accompanying text of any signal transitioning before the RST signal transitions and Figures 5 and 6 or accompanying text therefore do not disclose “the pull down function being performed prior to a reset function” as recited in claim 1, “pulling down the sensor potential below the selected critical level before the soft reset function is performed” as recited in claim 16, or “the sensor potential is pulled below a selected critical level prior to the time when a soft reset function is performed to reset the sensor potential” as recited in claim 24.

Because *Wu* fails to teach the identical invention as contained in claims 1, 16, and/or 24 Applicants respectfully submit that *Wu* fails to anticipate claims 1, 16, and/or 24. Because *Wu* fails to anticipate claims 1, 16, and/or 24 Applicants respectfully submit that claims 1, 16, and/or 24 are patentable over *Wu*.

Claims 13-15 properly depend from claim 1 and are thus patentable for at least the same reasons that claim 1 is patentable. Claims 17 and 20-22 properly depend from claim 16 and are thus patentable for at least the same reasons that claim 16 is patentable. Claims 27-29 and 31 properly depend from claim 24 and are thus patentable for at least the same reasons that claim 24 is patentable. (MPEP §2143.03 (citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)). Accordingly, Applicant respectfully requests that the Examiner reconsider and remove the rejection to claims 1, 13-17, 20-22, 24, 27-29, and 31.



## CONCLUSION

Applicants respectfully submit that all grounds for rejection have been properly traversed, accommodated, or rendered moot and that the application is now in condition for allowance. The Examiner is invited to telephone the undersigned representative if the Examiner believes that an interview might be useful for any reason.

Respectfully submitted,

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